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FRONT COVER

Philippine Farmer

This Filipino is representative of the millions of Philippine peasants upon whom the future prosperity of the new Republic to a large degree depends. (Photo courtesy of the Signal Corps.)

BACK COVER

Philippine Islands' Major Crop-Producing Areas

The Philippine Republic bases its economy chiefly upon agriculture. The map indicates, for each important crop, the area in which the most concentrated production takes place.

NEWS NOTES

Small-Farm Problems Get UN-FAO Study

The General Assembly of the United Nations is launching a study of economic problems of farmers in underdeveloped areas, as a counterpart to programs of technical assistance. The study is a product of the increasing recognition being given to the inability of farmers in many countries to fully apply modern agricultural practices because of complicating economic factors. Among such factors are absentee land ownership, exorbitant taxes and rents, inadequate credit facilities, high interest rates, and poor marketing facilities. The General Assembly has asked the Food and Agriculture Organization to team up with UN's Economic and Social Council, and together they will make recommendation on what can be done to improve these situations.

Syria Provides for Land Reform

Syria has recently adopted a new constitution whose Article 22 provides specifically for fuller utilization of the Nation's land resources on the basis of "social justice and for the benefit of the people." This represents the first land reform provision to be written into a constitution in the Middle East. The article sets forth these principles:

Cultivation of the land will be obligatory upon the owner. If he permits land to lie idle, he may have to forfeit his claim to it.

State lands (constituting about 40 percent of Syria's land area) will be distributed among landless people.

Small and medium-size farm ownership will be encouraged.

The amount of land to be held by any one person will be limited. (This stipulation aims at the future and was not made retroactive.)

The Government will encourage improvement of production techniques.

The Government will seek to foster model villages, improved rural housing, and cooperative societies.

The "rights of the peasants" will be protected and the raising of their levels of living will be aided.

Adoption of the new constitution paves the way for future legislation to carry out these principles, and strong support is said to be appearing for its enactment.

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FOREIGN AGRICULTURE ALICE FRAY NELSON, EDITOR

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Philippine Agriculture —Its Position and Problems

The Bell Mission Report on the status of the Philippines, and recommendations for its improvement, has been a subject of recent interest and controversy. This article points up the importance of the Mission's agricultural recommendations.

By C. M. PURVES and JOHN C. HOBBES

When the Philippine Islands became a Republic in 1946, their new status was one of mixed blessings—for with political independence came many problems of economic independence. Paramount among these problems were those of agriculture. Some agricultural problems were the result of World War II, including decreased production and reduced exports. Some of them were inherent in the Republic's rural structure, including tenancy problems, inadequate credit, and outmoded practices.

The new Republic did not deal successfully with its economic problems, and as a result they continued to worsen. They assumed such proportions in the next 4 years that the concern of the Philippine and United States Governments culminated, in 1950, in the dispatch of an economic mission [1] to the Islands to "consider the economic and financial problems . . . and to recommend measures that will enable the Philippines to become and to remain self-supporting." The following article deals with the situation confronting the Mission and its recommendations.

Agricultural Situation

The Republic of the Philippines is essentially a nation of farmers. More than 70 percent of the people are directly engaged in agriculture and the value of agricultural output comprises over half of the national income. But this production is largely dependent on a peasant-type agriculture of simple tools and small farms operated under traditional handicaps. In addition, all aspects of agriculture suffer from the lingering effects of World War II and domestic unrest in which the peasant himself plays a leading role. The Philippine Government has not as yet coped effectively with these problems, and agricultural production is still below the prewar level, thus compounding the troubles besetting a young nation.

Many aspects of the national economy require overhauling, but lasting prosperity will stem from greater production by the farmer. The Filipino farmers, forming as they do the lowest economic and social strata, are poorly equipped to meet the responsibility placed on them. Fundamental changes are needed in the farm areas if the Philippine Republic is to become economically stable. What is more, with these changes the Philippines can become even a prosperous agricultural nation, for it has an abundance of potentially rich but undeveloped farmland.

Until its independence in 1946, the Philippines was a dependency, first of Spain and then of the United States. Its society and economy developed according to the "colonial" pattern, depending on the production of raw materials by cheap labor. Farm production came to account for about 90 percent of the value of all prewar exports. The world grew to rely on the Philippines for practically all of its Manila hemp and for much of its coconut, sugar, and tobacco; almost 35 percent of the cultivated area in the Islands was covered by these crops. The rest of the farmland was devoted to growing food for local consumption, with rice, the staple food of the Filipinos, the most important crop.

Until the war the Philippine economy maintained a favorable trade balance. But it was dependent on the export of a few raw products and, besides, was highly dependent on preferences in United States markets.

Mr. Purves is assistant chief, Regional Investigations Branch, OFAR, and Mr. Hobbes is Regional Specialist, OFAR.

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[1] Dispatched by President Truman in July 1950 at the request of President Quirino of the Philippines. Agriculture was represented by A. L. Strand, president of Oregon State College, assisted by Mr. Purves.

Independence was already scheduled for 1946, with that status to be followed by a gradual reduction in the preferences and the beginning of a more competitive existence. Ever since 1936 plans had been in the making to prepare Philippine agriculture for the impending challenge—plans that called for more efficient and diversified production. But World War II and 4 years of Japanese occupation brought these plans to nought and shook the foundations of the Philippine economy. Commercial crop production stagnated for lack of markets. Draft animals, equipment, and processing facilities were destroyed. And through it all the farmers sought only to sustain themselves until the Americans should return.

Shortly after VJ-day the Islands assumed their independence, amidst the aftermath of war. And ever since then they have been plagued by serious economic problems, notably inflation. Civil strife, fed and guided by communists but born of home-grown grievances, has impeded normal economic, political, and social activity. True, the United States made large remittances to the Philippines after the war, but so much of the funds were spent on nonessentials that many of their expected benefits toward rehabilitation were never attained.

The saving element in the whole complex picture was the peasant, whose way of life was too simple to admit of much disruption and who continued his traditional pursuits. He, more than anything else, is responsible for the fact that in the past 4 years the physical volume of production has risen from less than half of the prewar level to within a few percent of it.

Production

But the efforts and total production of the farmer have been insufficient for the present economic crisis. The inadequacy of the peasant's effort lies exposed in a twofold shortage: there is not enough food for the home population, nor is there enough for export to provide the means for essential imports.

First of all, production of the staple foods—rice and corn—does not meet demand. True, the greatest postwar improvement of Philippine agriculture has been the expansion of rice production. Before the war, the Philippines were almost self-sufficient in rice; but since that time the increases in population have far outpaced the increases in the rice crops. Despite a record-breaking crop in 1949, estimated at 2.5 million tons, or roughly 6 percent more than the prewar average, about 11 percent of domestic requirements had to be imported. The 1950 crop was slightly larger than in the previous years, but per capita rice production was still less than 90 percent of the prewar figure.

Sorting abaca (Manila hemp) in the Philippines. This fiber is the Islands' principal export crop.

As for corn—the Philippines' second most important staple—considerable recovery has also been made since the war, but per capita domestic supplies in 1949 were only 80 percent of what they had been in 1940. Although the production and consumption of corn is highest in the Visayan Islands, the center of the Philippine archipelago, it is a secondary crop in many other areas. A brighter note in the diet picture rises from an expanding production of the many minor food crops—sweetpotatoes, cassava, and a variety of vegetables and pulses. But, even as before the war, the Filipino diet is still deficient in fruits and meats.

The depletion of the livestock population during the war has posed serious problems. The shortage of carabaos (water buffalo) and cattle, which traditionally supply most of the draft power, has seriously affected crop production. It will probably not be until 1953 that the number of draft animals reaches the prewar level. The greatest decrease has occurred in the beef herds that grazed on the extensive range land on some of the southern islands; in 1949 they were only half as numerous as they had been in 1940. Farmers report that meat prices are so high that they hesitate to save their breeding stock; and the shortage of credit

TABLE 1.—*Production of major crops in the Philippines, 1938 and 1946–49* [1]

[In thousands of short tons]

Crop	1938	1946	1947	1948	1949
Rice (rough)	2, 534	1, 786	2, 297	2, 465	2, 740
Corn	551	364	519	571	587
Sugar	1, 113	69	132	435	727
Coconuts:					
Copra	768	224	1, 099	971	768
Desiccated	39	(2)	10	50	65
Abaca (Manila hemp)	181	33	90	109	82
Tobacco	43	16	19	19	24
Root crops	369	478	506	577	581
Fruits and nuts [3]	282	288	406	191	297
Beans and vegetables	43	35	45	49	66

[1] Crop years ending June 30.
[2] Not available.
[3] Excluding coconuts.
Compiled from data issued by Philippine Bureau of Census and Statistics.

further discourages them in building up their herds. Before a vigorous cattle industry can be established in the Philippines, there must first be a sound breeding program, for the native cattle are inferior and the European cattle do not thrive in that area. The dairy industry, which also needs a breeding program, has a further deterrent—there is a shortage of grazing land near the cities. Dairy products are consumed mainly by the upper classes and are mostly imported.

Swine and poultry have made a more rapid recovery. By 1950 they were believed to have approached their prewar numbers. But even this increase permits the rural people only an occasional feast of pork or poultry—not enough for a proper diet. Most farmers raise a few hogs and chickens, which feed on kitchen refuse and left-overs from the fields. They are a convenient adjunct to Filipino farm life but are far from a solution to the Philippine meat shortage. Millions of pesos are still spent on imports of meat and dairy products.

Not only is production of food crops for local consumption falling behind needs. Lagging production of export crops also is of great concern to the Philippine Government. Only recently, and by virtue of import controls, has the trade balance become favorable. Coconuts are the only export crop that has returned to the prewar level. Exports of coconut products are far above prewar and these items have been the leading export since the war. These products and sugar, abaca (Manila hemp), tobacco, and pineapples will continue to supply the bulk of Philippine foreign exchange.

Sugar was formerly the Philippines largest export item, comprising more than 40 percent of the value of all exports in 1936–40. In 1940, about 1.1 million short tons was produced on 565,000 acres. During the war, however, the area planted to sugar declined, and some mills were destroyed. Sugar production is almost back to normal on the Island of Negros but not in the former producing areas of Luzon, where civil strife has made most planters reluctant to operate. Too, rice has been a more profitable crop than sugar and is being planted in place of it. Another depressing influence has been the continued controversy between sugar planters and millers, a controversy that has further precluded tranquillity in the sugar industry.

Although the sugar industry has recovered somewhat since 1946, the quantities of sugar available for export in 1950–51 will be only 75 percent of the duty-free United States quota accorded the Philippines in the Trade Act of 1946. Only by reducing costs, primarily through raising yields, will the Philippine industry be able to absorb the gradually increasing United States import duty beginning in 1954 and to actively compete on a price basis in markets not protected by trade agreement. The Philippines is a relatively high-cost producer. At the present time the varieties of cane commonly planted yield less than half as much as the best varieties in Indonesia.

Production of abaca fiber, a major export and a virtual Philippine monopoly, is still below the prewar output of 1.3 million export bales (of 2,783 pounds). Before the war, in Davao, the principal producing area, most of the abaca was produced under the supervision of the Japanese. After the war, the Japanese were evicted and into the vacuum came persons who had only a short-term interest in the already deteriorated plantations. As a result, cutting was excessive, reducing future production, and management was inefficient, permitting the invasion of the dreaded mosaic disease, which soon became widespread. While production has increased from 393,000 bales in 1946 to 525,000 in 1949, it is not likely that output can again reach prewar levels until this serious virus

TABLE 2.—*Number of livestock in the Philippines, 1939–40 and 1945–50* [1]

[In thousands]

Year	Carabaos	Cattle	Horses	Hogs	Goats
1939	2, 919	1, 349	340	3, 349	402
1940	3, 015	1, 396	344	4, 447	(2)
1945	1, 317	560	170	1, 984	197
1946	1, 389	444	151	1, 461	183
1947	1, 504	486	157	1, 753	211
1948	1, 716	613	183	2, 637	278
1949	1, 973	705	217	3, 349	317
1950 [3]	2, 200	800	260	4, 350	400

[1] Numbers as of January 1.
[2] Not available.
[3] Unofficial preliminary estimates, OFAR.
Compiled from data issued by Philippine Bureau of Census and Statistics and Bureau of Animal Industry.

disease is brought under control and cultural methods improved.

Tobacco production was a thriving Philippine industry before the war, ranking fourth as an export crop. During 1935–39 the average area planted to tobacco was 176,000 acres, which produced about 74.8 million pounds a year, more than 70 percent of which came from Northern Luzon. At that time, tobacco exports averaged more than 37 million pounds a year. The United States was formerly the leading foreign customer for Philippine cigars while Spain and other European countries were principal markets for leaf tobacco.

A variety of adversities beset the tobacco industry following the war. Owing to inflation, production costs have become so high that Philippine cigars and tobacco cannot compete in world markets, and in many areas the high price of rice and other food crops now makes it more profitable for farmers to grow these than a tobacco crop.

Moreover, within the Philippines, preference has swung to American tobacco products. The Government has attempted to protect domestic growers by imposing drastic import controls and by buying domestic tobaccos at high prices. Some recovery in production is forecast for 1949–50. Further recovery in the tobacco industry may occur, but it will doubtless be at the expense of the native consumers, who will pay even higher prices for tobacco products.

Of all the major export crops, coconuts were the least affected by the war. Most of the 2.5 million acres devoted to coconuts are located in Southern Luzon, Northern Mindanao, the Visayan Islands. Copra exports accounted for about 29 percent of the value of prewar Philippine exports and provided a large part of the vegetable oils in world trade. Philippine copra is generally inferior in quality to that of other exporting countries, but, because of a duty preference, most of it moves to the United States, where it is used mainly for industrial purposes.

Pineapple exports have assumed greater importance since the war. In 1949 they aggregated more than 50,000 short tons, as compared with 20,000 tons in 1940. Practically all of these pineapples are produced on one large American estate in Mindanao.

A variety of other crops—sisal, coffee, cacao, derris, ramie—are grown on a small scale, but expanded production of these is urged by advocates of a more diversified agriculture. As it is, prosperity in the Philippines is largely subject to vagaries in the world market for a few export commodities and is, therefore, influenced by factors over which the Filipinos have little control. Expanded production of additional crops would reduce this risk. Also, some of the items that loom large among Philippine imports could be produced domestically to a greater extent. Among these are meats and dairy products and fibers for bagging. Too, the Filipino diet would benefit by increased fruit consumption. The diversification of agriculture offers advantages; it will, however, be a slow process.

Tenancy, Credit, and Marketing

The peasants themselves, along with the social and economic institutions that encumber them, combine to create a rather enigmatic situation standing in the way of the attainment of a healthy agricultural industry. Some of these handicaps rest within the farmers themselves: illiteracy and faith in outmoded practices. Others stem from the inequities dealt them by other segments of society: the landlords, the money lenders, and the merchants. Thus, the Filipino farmer is in a poor position to accomplish more in the future than he has in the past. Lacking in organizations of their own and having only tenuous contact with other classes, these farmers comprise a difficult medium through which to convey modern agricultural techniques to the ultimate target: the farmland. Even if they are shown what to do, most of the farmers are so poor that it is difficult for them to apply their knowledge. The problem is greater than a mere lack of "know how."

TENANCY. Of the several adverse agrarian relationships besetting Philippine agriculture, none is so severe as the high rate of tenancy. Through the years, much of the best land in the Islands has found its way into the hands of a few, who have exploited it by parcelling it out to tenants in small plots at exorbitant rents.

According to the 1939 census, tenants comprised a minimum of 30 percent of all Filipino farmers and in some provinces—particularly in the "rice bowl" of Central Luzon—more than 60 percent found themselves in that group.

A common arrangement under the tenancy system as it operates in the Philippines is for the tenant to contribute the labor, the work animals, and half the cost of transplanting and harvesting—and then to turn over half the crop to the landlord. This demand upon him keeps the farmer in perpetual poverty and increasingly dependent on loans drawing exorbitant interest. As a result, many tenants spend a lifetime in debt, and it is not uncommon for children to inherit their elders' obligations. Tenancy contracts are so frequently ignored at the option of the landlord that they offer the tenant little security on the land. In brief, the landlords have acquired all the bargaining advantages, and the tenants, who can live only by farming, must make the best of the situation.

The system diminishes any incentive to greater production and is an obstacle to the widespread acceptance of better farming methods. The tenant is reluctant to make improvements on another man's land from which he may be arbitrarily evicted. Also, the tenant is reluctant to invest additional time and effort in greater production when much of the increment goes to the landlord. On the other hand, the landlords live better and are less urgently concerned in such matters. Tension between tenants and landlords has grown so that agreement between them on how to share the burden is difficult and rarely achieved.

Efforts to remedy the landlord-tenant relationships have thus far been ineffective. The most recent palliative legislation was the "70–30" law, passed in 1946. In general, it provided that the tenant's share of a crop would be increased to 70 percent, and the landlords' reduced to 30 percent. In practice, this law has been widely evaded and ignored.

Farm Credit and Marketing. Perpetual debt and the shortage of farm credit at reasonable terms is a serious problem in the Philippines. Loans from the money lender, the merchant, and, in the case of tenants, from the landlord, are readily available to the peasant, but they draw extremely high interest and create more problems than they solve. Bank loans are theoretically available to peasants and offer better interest rates, but they are so bound by red tape and security requirements that they are generally out of the reach of poor farmers. For lack of alternative, it is the private sources of credit that are patronized almost exclusively.

The shortage of credit at fair interest rates is serious in itself, but it is inextricably related to the problems of tenancy and rural marketing. The shortage of credit has been an important factor in increasing the extent of tenancy and in binding the tenant to the landlord. Even owner-farmers suffer, for they frequently must pledge their crops to merchants in return for loans and in this way are generally deprived of a full return for their produce. Practically none of the borrowed money is invested in improving the farm enterprise, since the cost of credit is in excess of any profit that might possibly result. Thus, improved farm credit may be regarded as a sort of keystone in building a better farm economy. It must be provided in adequate quantities at reasonable rates if the full productive potential of the peasants is to be put to work.

The marketing system in the rural communities is

Transplanting rice in the Philippines. Despite record-breaking crops since the war, the Islands do not produce enough rice to meet domestic needs.

Cracking coconuts in Davao. Most of the dried meat of copra goes to the United States where the oil is expressed and used for industrial purposes.

another depressing influence on agriculture. As indicated above, loans accepted from merchants generally restrict the producer's choice of buyer and his bargaining power. But even where the debtor-creditor relationship does not exist between grower and buyer, other factors conspire to deprive the small grower of a large part of the market price of his goods. Among these factors are many middlemen, inadequate storage facilities, a lack of recognized grades, and insufficient knowledge of marketing conditions. As a result, the farmer pays high prices for what he buys and receives low prices for what he sells.

Farmers' cooperatives have been rather unsuccessful in the Philippines and there is now little enthusiasm for them. Government efforts have as yet done little to improve the marketing system although the prices of some commodities have been somewhat improved by direct Government intervention. For the most part, the marketing system continues to operate in much the same way as tenancy and usury in depriving the farmer of a full return for his labor.

Unescapable poverty, and the lack of interest in the tenants' welfare on the part of the landlord class, are high among the causes of the domestic unrest that is widespread in the Islands. The fact is evidenced by the communist-led Hukbalahap movement centering in Central Luzon, the region where tenancy and poverty are most severe. With a few exceptions, the case of the tenant has been espoused only by the "Huks," who have found in the tenancy system most of their impetus. And that impetus is such that a good deal of the countryside is continually threatened by bloodshed. The Government continues to expend much of its budget in attempts to quell the outlawed "Huks," but the movement shows no signs of subsiding.

The problems of agrarian relationships are of practical concern in connection with efforts to increase production through the use of improved farming practices. The average farmer is too poor to invest much in the accouterments of modern production techniques—fertilizers, pesticides, and so forth—nor in concomitant capital investments such as equipment, livestock, buildings, and other improvements. Thus, not only must the peasants be given "know how," but they must also be enabled to finance its application where it can bear fruit—on the farmland.

Attitudes Toward Agriculture

One of the major limitations on Philippine agriculture is the small importance and slight dignity that has been accorded it. The Government has devoted little attention to agricultural problems. Appropriations for the benefit of agriculture for the fiscal year 1951 amounted to less than one-fourth of 1 percent of the total budget, an amount not commensurate with the importance of agriculture to the nation. Most of this goes into overhead expenses, leaving but a minor part for the actual operations. Little provision has been made to carry out the research needed to produce more efficient techniques adapted to the Islands. And then, only a small part of the findings that have been generated by the limited research facilities have been carried from the laboratories to the farm by the poorly organized and ineffective extension service.

A hopeful note is struck by the fact that there is a great deal of interest and support given to education in the Philippines. Literacy is low among Filipino farmers although not so low as in some other parts of Asia. School facilities are not as yet adequate but much effort is going toward raising the level of education in the Islands. Also, the College of Agriculture at Los Banos is highly regarded, although it suffered much during the war.

On the other hand, an education in agriculture is regarded by Filipino youth as the poorest and last alternative. Once an education in agriculture is obtained, the recipient usually seeks to disassociate himself from the farmer as far as possible. This attitude is due not only to the cultural aversion to agriculture in Asia, but also to the dearth of adequately paid jobs in that field. As a result, there is a shortage of trained manpower in the Government to cope with, or even understand, agricultural problems. Another result of this tendency is that no middle-class group has developed to fill the void between the aristocracy and the Filipino farmer.

Outlook

While it is evident that greater production can be obtained by solving the problems pervading the present farm area, even greater prosperity can be reached by developing the large areas of potentially rich farmland that now lie idle throughout the Philippines. It is paradoxical that this situation exists in view of the tenancy and population congestion that are found in some regions. Yet, according to some estimates, such areas in Mindanao and other southern islands are the equivalent of the present cultivated area. Abaca producers are especially eager to move into such virgin land as a means of escaping the mosaic disease. All crops now grown in the Philippines may be grown on such land, which constitutes an immeasurably valuable asset.

Many obstacles impede the exploitation of these areas. Swamps must be drained, forests cleared, and malaria brought under control. The noxious *cogon* grass that covers the open plains must be eradicated. To do many of these things, large investments in tractors and heavy equipment are required.

Another deterring influence is the difficulty of obtaining secure titles to the land. In many cases, land records were lost during the war and at present the cost of obtaining titles is often not worth the effort. Litigation over land disputes now clogs the courts while "squatters" occupy land claimed by others, thus adding to the chaos.

Until clear title is established, such land cannot be offered as security for loans. Thus, the preexisting shortage of investment capital is aggravated. The required machinery and labor can hardly be financed except by the Philippine Government.

The Government has not as yet solved these problems, and its own resettlement programs have been on a small scale. The Filipinos are inately hesitant to go into strange areas and, once there, need considerable assistance in getting established. Roads, markets, schools, and related necessities have not been adequately provided. Thus, the development of these potentially rich lands has been delayed for lack of hands to till them. It may be assumed, though, that these areas will be fully exploited eventually. The question is—will it be done in time to aid the Philippine economy in its present critical condition?

There is little doubt that small farms will continue to typify Philippine agriculture for some time to come. It is, therefore, unlikely that the average farm could profitably use tractors and such equipment in view of their high cost and the present abundance of labor. Rather, it is more likely that the simple implements already familiar to the farmer will be improved upon and that more efficient production will come from these.

It is evident, then, that greater production is possible in the Philippines through better use of the present cultivated area and exploitation of the rich lands that now lie idle. Achieving this, the new Republic can "become and remain self-supporting." It is toward this end that the Bell Mission has made the following recommendations regarding agriculture:

Mission Recommendations

1. Emergency action should be taken to deal with the plant disease affecting abaca production, and arrangements made to provide disease-free seed for new plantings. The improvement and expansion of all export crops should be encouraged and additional efforts should be made to bring the Kadang-Kadang disease of the coconut under control. Money now collected and available in the sugar adjustment and stabilization fund should be made available for research in methods of improving production. The possibilities of developing varieties of tobacco more suitable to export needs and for use in domestic cigarette production should be studied.
2. The deficit in the production of food grains is critical. Production of major items could be quickly expanded by adopting improved methods for which information is already available and by the additional use of fertilizer. Funds should be made available for importing fertilizer and irrigation equipment to expand rice and corn production.
3. Greater diversification in agriculture should be achieved by increasing production of crops for commercial use at home and for export. The livestock improvement program of the Bureau of Animal Industry and the breeding program of the College of Agriculture should be given greater support by the Government. The use of by-products for animal feeds should be emphasized and the raising of poultry and pigs encouraged.
4. The Philippine budget should make adequate provision for experimental work, extension service and technical and vocational education in agriculture. The College of Agriculture at Los Banos should be rehabilitated, a central experiment station located at the college and equipped with facilities to carry on the necessary research for agricultural development. Specialized experiment stations should be established in suitable places throughout the country.
5. The Department of Agriculture and Natural Resources should study the problems of land use, land clearance and settlement, irrigation and drainage. The projects of the Philippine Government for agricultural development should be given detailed consideration before they are inaugurated. The Government corporations set up to deal with agricultural production should be liquidated and their functions transferred to the Department of Agriculture and Natural Resources.
6. Laws providing for the division of crops between the

tenant and landlord should be amended and enforced to see that the tenant receives an equitable share of the crop for his labors. At the same time, the landlord should receive sufficient return to see that he is interested in improving his land. A broad program should be inaugurated of acquiring large estates at fair value for resale in small holdings to tillers of the soil. New lands should be opened for settlement by homesteaders and their titles promptly cleared. The administration of public lands and the procedures for land-title registration should be thoroughly overhauled. Cadastral surveys should be completed and courts of claims set up to handle land cases exclusively.

7. Rural banks should be established to provide credit for agricultural production. Loans should be available both to small land owners and to responsible tenants. The rate of interest should be moderate, approximately the same as commercial banks charge for larger loans to agricultural producers in a strong financial position. A farm management service should be operated in connection with rural banks to provide farmers with advice on financial problems.

8. Economic and technical assistance should continue to be furnished the Bureau of Fisheries. With the research already conducted by the Fish and Wildlife Service, a small staff of technical assistants would aid materially further development of the fishing industry.

9. A forest products laboratory should be established to test and develop uses for forest products and a pilot plant built to help develop quinine production. Additional appropriations should be given the Forestry Service to place timber cutting on a sustained yield basis and to prevent settling on lands adapted only to timber production.

Recognizing the plight of the Filipino farmer, the Mission stated that "We cannot say that what has been accomplished since 1946 lends any great hope that Philippine agriculture will go very much beyond its status in 1940 unless some new impetus comes in to encourage the use of improved methods of production and make their use worthwhile to the farmers who adopt them." A "new impetus" throughout the Philippine countryside is called for if the Philippine agriculture is to shake free of the problems plaguing it and to discharge its responsibilities to the economy. The Philippines must give more attention to its agriculture for in its struggle for lasting economic prosperity the farmland is the battleground and the farmer the foot soldier.

Agricultural Production Indices For the ERP Countries

The Office of Foreign Agricultural Relations' indices of gross agricultural production in the ERP countries were first released on May 6, 1949, and published in the June 1950 issue of Foreign Agriculture. *It was announced at that time that net indices would be released later. The present study fulfills this promise, and at the same time gives a recalculation of the original index material on the basis of later production estimates and of a somewhat different method explained in the text.*

by J. H. RICHTER*

The net indices of agricultural production presented in the table below throw into even sharper relief than the earlier gross indices did the substantial recovery made by Western Europe's agriculture since the end of the war. This is partly because the net indices include the increase in feed sufficiency, while the gross indices—based on total livestock output whether produced from domestic or from imported feed—cannot reflect this part of the increase. In addition, later estimates of production for the consumption year 1949–50 in many cases exceeded the earlier estimates by a substantial margin, especially in the case of livestock products.[1] Gross agricultural production in the ERP area, in the present recalculation, appears to have reached a level of 2 or 3 percent above an average prewar year in the favorable season 1949–50—net agricultural production, 5 or 6 percent above. The prewar average chosen for comparison purposes is, for most countries, 1933–34 to 1937–38. Since agricultural production in the 1930's and up to World War II rose measurably in most European countries, the postwar

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*The credit for the background work that underlies this study again goes to my associates in the European Division, OFAR, as explained in the corresponding footnote to the earlier article published in *Foreign Agriculture,* June 1950.

[1] Aside from the upward revisions in the production estimates for 1949–50, some additional corrections were made that affected all postwar years. Thus, the postwar estimates for France were revised to make additional allowance for the underestimation of livestock output, especially cattle and milk. Adjustments for the United Kingdom included an allowance for the production of vegetables on plots of 1 acre or less in Great Britain and one-fourth of an acre in Northern Ireland, which had not previously been considered in total output. Western Germany was also additionally corrected for underestimation, particularly for meat.

indices would be lower if expressed in terms of, say 1935–39. Production in 1949–50 probably did not quite come up to the trend level of production reached in Western Europe immediately before the outbreak of war. Yet the present estimates show conclusively that recovery of agricultural production has been considerably more rapid after World War II compared to what it was after World War I.

The succession of 3 years of relatively high production—1948–49, 1949–50, and also 1950–51—makes it sufficiently clear that the increase in output since the low of 1947–48 not only was due to favorable weather but also reflects basic recovery and improvement—larger application of fertilizer, greater mechanization, better seed, cultivation, pest control, more efficient feeding, in short, better management. The trend value of Western Europe's total agricultural production in 1949–50—that is, discounting the influence of exceptionally favorable weather—probably reached 100 percent of the prewar average chosen; the output of livestock products, perhaps 95 percent.

The Estimates

The estimates made of developments in agricultural production for the past three seasons are given in the following table. The production year as conceived

TABLE 1.—*ERP countries: Indices of agricultural production* [1]

Country	Gross [2]		Net [3]	
	Total	Livestock products only	Total	Livestock products only
Austria:				
Prewar	100	100	100	100
1947–48	65	59	71	65
1948–49	72	63	75	67
1949–50	80	72	82	73
Belgium:[4]				
Prewar	100	100	100	100
1947–48	83	80	100	101
1948–49	93	86	111	107
1949–50	105	96	118	109
Benelux:[4]				
Prewar	100	100	100	100
1947–48	77	71	89	85
1948–49	91	82	105	98
1949–50	106	98	119	111
Denmark:				
Prewar	100	100	100	100
1947–48	84	74	94	83
1948–49	94	80	101	86
1949–50	109	97	115	102
France:[5]				
Prewar	100	100	100	100
1947–48	84	86	87	91
1948–49	99	97	101	101
1949–50	101	103	103	106
Western Germany (excluding Saar):				
Prewar	100	100	100	100
1947–48	70	59	74	63
1948–49	83	68	86	70
1949–50	93	83	93	82
Greece:[6]				
Prewar	100	100	100	100
1947–48	86	72	86	72
1948–49	82	70	82	70
1949–50	106	76	106	72
Ireland:				
Prewar	100	100	100	100
1947–48	85	81	88	84
1948–49	89	83	92	87
1949–50	99	94	100	94
Italy:[5]				
Prewar	100	100	100	100
1947–48	88	83	88	82
1948–49	94	92	94	90
1949–50	103	98	102	98
Netherlands:[4]				
Prewar	100	100	100	100
1947–48	73	65	82	75
1948–49	91	80	102	92
1949–50	108	99	119	112
Norway:				
Prewar	100	100	100	100
1947–48	93	87	99	94
1948–49	99	91	108	99
1949–50	109	108	114	113
Continental Portugal:[5]				
Prewar	100	100	100	100
1947–48	110	95	109	93
1948–49	100	104	98	99
1949–50	103	100	101	94
Sweden:				
Prewar	100	100	100	100
1947–48	104	106	105	108
1948–49	114	109	116	111
1949–50	124	118	127	121
Switzerland:				
Prewar	100	100	100	100
1947–48	90	82	90	80
1948–49	100	90	103	92
1949–50	102	95	102	95
Turkey:[7]				
Prewar	100	100	100	100
1947–48	96	104	96	104
1948–49	123	113	123	113
1949–50	112	108	112	108
United Kingdom:				
Prewar	100	100	100	100
1947–48	94	81	118	107
1948–49	108	93	135	122
1949–50	111	101	136	130
ERP area (excluding Turkey):[8]				
Prewar	100	100	100	100
1947–48	84	77	89	84
1948–49	95	86	100	92
1949–50	102	96	106	101
ERP area (including Turkey):[9]				
Prewar	100	100	100	100
1947–48	85	78	90	85
1948–49	96	87	101	93
1949–50	103	97	106	101

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[1] Prewar estimates of production of individual agricultural commodities are mostly official estimates and mostly refer to the period 1933–34 to 1937–38; in a few cases it seemed necessary to correct for biased reporting. Postwar estimates of production of individual commodities have, in a large number of cases, been revised for under-reporting. Even though such revisions have also been made for Austria, the adjusted postwar production figures (and hence the indices) still seem too low, especially for livestock products; the under-estimation of the postwar indices may amount to as much as 5 to 10 points for total, and 10 to 15 points for livestock products.

Estimates of utilization of supplies are those of the Office of Foreign Agricultural Relations. The indices for Benelux are the weighted averages for Belgium and the Netherlands.

[2] No deduction made for the value of imported feed (as part of the feed supply from which domestic livestock was produced).

[3] Excluding the value of imported feed (as part of the feed supply from which domestic livestock was produced.

[4] Excluding fruit whose large crop fluctuations make inadvisable inclusion in the index.

[5] Including wine.

[6] Including wine and tobacco.

[7] Including tobacco and cotton.

[8] Excluding also Luxembourg and Iceland. The indices include wine for France, Italy, Portugal, and Greece, and tobacco for Greece; they exclude fruit for Belgium and the Netherlands (and Benelux)—see footnote 4.

[9] Excluding Luxembourg and Iceland. The indices include wine for France, Italy, Portugal, and Greece, tobacco for Greece and Turkey and cotton for Turkey; they exclude fruit for Belgium and the Netherlands (and Benelux)—see footnote 4.

Dr. Richter is Head, European Division, Regional Investigations Branch, OFAR.

for purposes of this study coincides with the concept of the consumption year—running from the middle of one calendar year to the middle of the next. Thus, the season or production year 1949–50 includes the production of crops harvested in the summer, fall, and winter of 1949 so far as reported as 1949 production. It also includes production of livestock products that became available throughout the 12-month period from the middle of 1949 to the middle of 1950.

The data in the table should be used in conjunction with the methodological explanations, which follow. For a discussion of the recovery in agricultural output since the war, see the first chapter of the article published in the June 1950 issue of *Foreign Agriculture,* which still adequately describes the main characteristics of postwar recovery.

The Method

Basic Data and Hypotheses

The explanations given in the article that appeared in the June 1950 issue of *Foreign Agriculture,* in their reference to essential concepts, are applicable to the present methods of recalculation as well. The method of index computation used in that article will be referred to here as method A; the present method may be called method B.

It was assumed, both in method A and in method B, that food output is representative of total agricultural production, including production of the few industrial crops that ERP countries produce. For Greece and Turkey, a separate allowance has been made for the inclusion of such a major item as tobacco; for Turkey, cotton has also been separately included. For products other than tobacco and cotton, production was measured by the amount of individual commodities produced for food. Production of feed and of animal draft power was included, not separately, but indirectly in the output of the foodstuffs into whose production they ultimately enter. In this way, an approximation to the total agricultural output in each of the countries was obtained.

In method B the weights assumed for the various products were based on farm prices, which were obtained from a variety of sources. Prices in each country were first expressed as a percent of the price of wheat, and these relative prices for the individual countries were averaged, on a weighted basis, for the ERP area as a whole. The ERP area price averages for prewar and 1948–49 in turn were averaged and the resulting relatives were used as the weights applied to the output data for each country, both for prewar and for postwar years. These weights are as follows:

Farm Price Relationships [1]

Wheat	100
Rye	90
Barley	85
Oats	75
Corn	70
Oilseeds	250
Refined sugar [2]	120
Potatoes	30
Cattle (live weight)	420
Sheep (live weight)	480
Pigs (live weight)	550
Horses (live weight)	250
Poultry and rabbits	550
Eggs	800
Milk	85
Vegetables	70
Fruits and nuts	140
Dry legumes	120
Rice	70
Olive oil	450
Wine	100
Tobacco	800
Cotton	700
Oilcake (imports)	110
Bran (imports or from imported bread grain)	90
Other concentrates (in terms of grain)	85
Skim milk (for feed)	23

[1] Prices per ton of each product when wheat price per ton = 100.

[2] Based on sugar-beet prices.

Output

Grain, potato, and dry legume output was considered to be equivalent to total production, minus seed and waste, minus feed. Milk output was represented by total production of whole milk, minus whole milk fed to livestock. The interpretation of output in the case of other products does not necessitate explanation.

The production and utilization figures were taken from the food balances of the Office of Foreign Agricultural Relations. For products not directly shown in the food balances, the data were assembled from a variety of official and nonofficial sources. The production figures for meat and animal fats were converted into live weight to permit the application of live-weight prices. Butter and cheese were not separately listed as output, but included in total milk production. Total output, therefore, included total production of agriculture, with the exception of some items such as flowers, flax and hemp, silk, and wool. The implication of such exclusion is that the movement of this small part of total production paralleled that for the bulk of the agricultural output.

Double counting of feed and of the livestock products produced from that feed was largely avoided. Feed production was excluded from output, while livestock products were included. Furthermore, the value of the quantities fed to livestock of the bran obtained from milling domestic bread grains, of skimmed milk and butter milk from domestic whole milk, and of oil cake from domestic oilseeds that are returned to, repurchased by, or retained on the farm and that thus account for a fraction of the output of livestock products has been deducted from the output totals. Such deduction was necessary because the value of these feedstuffs would otherwise be included in output not only of the livestock produced from them, but also in the output of bread grains, whole milk, and oilseeds, respectively.

An element that is *not* included in the index even though it is part of the agricultural output of a country is the feed produced for nonfarm use, such as feed sold off the farms for the feeding of nonfarm livestock.

Net Index

To arrive at a net index the output totals for the gross index were diminished by the value, again expressed in terms of wheat, of imported feedstuffs. The resulting net output values were used in constructing the net index. The net index, therefore, represents agricultural production *excluding* the value of the imported feed that has gone into the production of domestic livestock, including animal draft power. (The gross index counts this share of the output as domestic production.) The net index does, however, include and count as domestic production the value of the livestock products produced from imported feed to the extent that such value exceeds the value of this feed.

In considering the possibilities and possible uses of a net index of agricultural production, it should be noted that even the best net index will not be completely "net." That it does not represent net production or added value in the sense of national income analysis is obvious. However, the index does not even represent net production in a cruder sense that would take account at least of all imported factors of production. For even though imports of fertilizers, of farm machinery, of seeds, and other means of production also account for part of the total agricultural output of a country, the index makes no allowance for these factors. In many respects gross indices of agricultural production are perfectly satisfactory measurements of the output of the agricultural sector of the economy.

Stocks and Lags

The calculation of the indices of production is based upon the principle that what is to be counted is "end use" output, not intermediate output that goes into the production of *other* agricultural products. But "end use" in this context is not an absolute but a relative concept—relative with respect to the individual period of production that is being considered. Thus, production of food is an end use—production of feed is *not*, if fed during the period considered. But to the extent that feed is put into stocks, or exported, or goes to nonfarm uses, its production is not intermediate but is for an end use, as far as that production period is concerned; in this case it must, therefore, be counted as part of output.

If there were sufficient information for estimating *all* changes in stocks, the index calculations would be considerably more precise than they actually are. Thus, in the construction of the net index, there is a problem connected with the question of making allowance for imported feed: it is the lag in the output of livestock products compared to the importation of the feedstuffs from which they are produced. Imports of feed during any one 12-month period are likely to be reflected, in part, in the output of livestock products, not during the same, but during the subsequent, period. Generally, the lags that exist, and shift from year to year, between the production as well as importation of feedstuffs and the output of livestock products fall into the category of stocks movements that cannot at present be adequately assessed. They are also connected with the further difficulty that recorded production may include some capital consumption, or may exclude a share of production that is capital formation. Meat output, for example, in any *one* year is not likely to be equal to the total growth of meat on livestock during that period, but may exceed that growth or fall short of it. In the former case the excess represents capital consumption, although conventional production statistics report it as production; in the latter case the excess of growth over slaughter is still production, although necessarily excluded from statistics reporting production. An index of meat output based on production statistics, therefore, only in rare cases represents actual production of meat during the given period. Similarly, unless special adjustments are made, an index of agricultural production does not reflect the changes in the growth, positive or negative, of livestock capital represented by such livestock as dairy cattle or draft animals. It is extremely difficult to make allowances for these factors; they have, for the time being, been neglected in the construction of the indices.

Considering the ambiguities that arise from the frequent absence of information on the movement of stocks, from the existence and the shifting of the lags that have been indicated, and from the impossibility of assessing properly the changes in the livestock capital in many countries, the computation of indices for 12-month periods is rendered somewhat problematical. A comparison of a "postwar level" (over a period of years) with a "prewar level" would perhaps be better, although such a comparison is hampered by the fact that production adjustments are still under way and a "postwar level" of agricultural production in Europe, in a relevant sense, has not as yet been established.

The calculation of indices of production for any one country by national research institutes or research units in the administrative service of individual countries is obviously not handicapped by the same difficulties as was the present attempt at comparable and uniform treatment of the subject for 15 different countries.

Subdivision of Indices: Crops-Livestock Products

The indices of production have been subdivided—giving a series that represents the output of livestock products separately. A subindex of crop production is not included in the present statement since the methods chosen would have made it necessary to base such a subindex upon the production of crops excluding feed, such as grain for feed, hay, and the yield of pastures—products that in any *one* year may not at all be adequately represented by the production of crops for food. Reliable direct estimates of the production of absolute feed crops, such as hay and the yield of pastures, are available only for few countries. On the other hand, it would not be possible to have feed production represented by domestic feed equivalents of the output of livestock products because of the problem of the various and shifting lags in such output compared to the production of the feed from which it is obtained.

Comparisons

Differences in the indices of production compared to calculations made for some of the countries by their own research institutions and elsewhere are partly accounted for by the following factors. First, there are differences in the base period chosen. For the present indices, the base period is, with few exceptions, 1933–34 to 1937–38. Since in the 1930's and up to World War II, agricultural production expanded considerably in a number of countries, the selection of a later base period—as in some of the studies made elsewhere—would give lower postwar indices. Second, there are the differences in the price weights applied. Obviously national indices are based on domestic price relationships that, in some cases, differ a great deal from price relationships for the average of the ERP area, depending in part on the domestic price policy adopted. Third, estimates of production of individual commodities have, in many cases, not been corrected for the frequent postwar underestimation, while the food balances of OFAR did undertake such correction where it seemed possible. Finally, there are also some methodological differences as among the various studies.

Method Summarized

A convenient summary of what ideally should have been considered as output or production for purposes of the construction of the indices, and where lack of sufficiently conclusive information prevented the procedure from coming up to that standard, may be provided as follows:

Gross Index

Standard aimed at:	*Practical procedure applied:*
(1) Original output from the soil. (2) — Feedstuffs produced.	(1) (2) } Considered.
(3) + Output of livestock products (including positive or negative growth of livestock capital).	(3) Output of livestock products considered; positive or negative growth of livestock capital not considered.
(4) + Feedstuffs produced and put into stocks, or exported, or put to nonfarm use.	(4) Feedstuffs produced and exported considered; feedstuffs produced and put into stocks considered partly, subject to availability of information or possibility of making estimates; feedstuffs put to nonfarm use not considered.
(5) — Waste.	(5) Considered.
(6) — Seed from previous period.	(6) Considered deduction of seed reserved out of current (not previous) period.
(7) — Feedstuffs drawn from stocks.	(7) Considered partly, subject to availability of information or possibility of making estimates.

Net Index

(1) to (6) as under Gross Index.	(1) to (6) as under Gross Index.
(7) — Feedstuffs drawn from stocks, or imported, and fed.	(7) Deduction for imported feedstuffs fully considered; withdrawals from stocks considered partly, subject to availability of information or possibility of making estimates.

South Korea's Extension Program

by THOMAS W. MORGAN

South Korea's agriculture has doubtless suffered greatly as a result of the war. As reconstruction goes forward, it can be hoped that use will be made of the group of South Korean leaders who have received training in the fundamental principles of a free, unfettered agricultural educational program.

The importance of agricultural reconstruction is indicated by the fact that fully 75 percent of South Korea's citizens are engaged in farming. The average farm size is about 2¾ acres, from which the farmer is expected to support his family and produce a surplus of food for the urban population.

From 1910, when Korea was annexed to Japan, until the arrival of Allied troops in 1945, the policies of agriculture in Korea were determined by the Japanese. These policies were designed not in the interest of Korea but for the advantage of the Japanese Empire. The educational program (if such it could be called) provided by the Japanese often took on the form of force, compulsion, coercion, and penalty. Korean farmers did not have a voice in their operations. Many farmers who had grown up under this system knew nothing of the free democratic processes of agricultural education involved in an extension service.

South Korean extension workers distributing agricultural publications to farmers.

After the Extension Service was organized, on December 15, 1947, the first step in the training program, planned for all levels of the extension staff, was to see that employees understood the Extension Service concept—"advise" and "suggest," as contrasted to the Japanese "tell" and "direct." Once the staff understood this new and different approach, the training program was broadened and specific extension techniques were taught.

Organization

The Agricultural Improvement Service, of which the National Agricultural Extension Service is a part, was created by ordinance No. 160 of the South Korean Interim Government (replaced by the Government of the Republic of Korea in 1948). This ordinance specified that the Extension Service staff would consist of a National Director, nine Provincial Extension agents (one for each Province), and a Gun (pronounced goon) agent and assistant Gun agent for each Gun primarily agricultural. For South Korea, this meant establishing the Extension Service in each Gun as all were considered "primarily agricultural."

Civil boundaries for governmental purposes divide South Korea into 9 Provinces, 128 Guns, and 1,527 Myuns (subdivisions of Guns). The recruiting of the extension staff, totaling 276 positions, was started in January 1948. Recruiting of personnel had proceeded sufficiently by March 10 to enable the first orientation and training meeting for extension workers to be held. This meeting continued for 10 days and was attended by more than a hundred extension workers. Upon completion of this meeting, the employees returned to their posts and began organizing their work. Soon thereafter it became apparent that due to the density of population, poor roads, and lack of adequate facilities for travel, additional personnel were necessary if extension services were to be made available to the majority of farmers. Fortunately, the extension movement had caught on with such fervor that agricultural leaders and Government officials soon recognized the organization's potential value and importance to the

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When this article was prepared, it appeared that the war in Korea was about ended and that a reconstruction period would soon be under way.—EDITOR.

economic welfare of the nation. This recognition made it possible to secure governmental support for employment of additional personnel. On June 2, 1948, a directive was issued to employ an extension worker in each Myun. Twenty subject-matter specialists were also added to the national office staff. Thus through this action the extension organization was ultimately composed of a staff of 2,145 employees.

Organization of Training Program

The organization of the training program was adjusted from time to time as experience in the field indicated. Finally, a plan that seemed to offer the greatest possibility of success evolved. Although there were some variations, this training organization was generally followed:

Specially designed bimonthly seminars were held for the specialist staff who also received the training given all Gun agents. The specialists in turn were instructors in the training meetings conducted later for Myun agents. As the specialists gained experience and accumulated a reference file of research data, they prepared technical subject matter for Gun and Myun agent training courses.

Much of the training of the Provincial agents was done by the American Extension Advisory staff that worked with them in their Provinces. Since there were four Americans on the staff, they were able to spend considerable time in each Provincial office. These personal contacts were augmented by meetings of the Provincial agents held as often as possible, the goal being at least four a year.

Gun agent training meetings were held each month, generally at the Provincial office. These were planned and necessary material for each meeting was assembled by the Provincial agent, assisted by the American advisor. Each Gun agent training meeting was attended by an American advisor, who was responsible for presenting some basic principle of extension service teaching.

The first Myun agent orientation and training meetings were held at Provincial offices and were of 2 or 3 days' duration. Generally all four Americans of the Extension Advisory Group participated. Later, the Provincial agents established Myun agent training schools, which offered instruction in extension methods and technical subject matter. The Extension Specialists contributed to the success of these schools.

4–H Sewing Club, one of many 4–H Clubs that were established for the rural youth of South Korea.

In order that all extension personnel might be kept up to date on the most important discussions at the training meetings, mimeographed copies of the discussions were distributed throughout the organization.

For the more intensive technical training, technological schools were held at the National Agricultural Experiment Station for a limited number of Gun agents. Courses of from 2 weeks to a month covered such fields as horticulture, livestock, sericulture, and soil conservation. Teachers of the College of Agriculture and technicians of the Agricultural Experiment Stations served as instructors.

Training Given

Generally, extension workers received training in the following techniques:

Planning the extension program;
Planning farmer meetings;
Preparing material for use in meetings and presenting it properly;
Using farmers as leaders in disseminating information to others;
Making farm visits most effective;
Establishing and utilizing demonstrations;

Mr. Morgan, Extension Specialist, Estación Experimental Agrícola del Ecuador, at Quito, was advisor to South Korea's Agricultural Extension Service from 1947 until November 1949.

Preparing circular letters and using them;
Writing news articles;
Using the radio;
Organizing 4–H Clubs;
Training and using local 4–H Club leaders;
Planning 4–H projects and writing project outlines;
Using special services to farmers as a means of teaching;
Preparing charts, models, and exhibits and using them;
Stimulating farmer interest through contests, fairs, etc.; and
Utilizing educational pictures and slides.

In addition, the specialist staff received training in the study and analysis of research data of local experiment stations, study and adaptation of results of research in other countries to local conditions, assembling for Provincial agents' use technical reference material, preparing project outlines and subject-matter information for Gun and Myun agents, and writing subject-matter bulletins for farmer distribution.

The Provincial agents received training in administration and long-range program planning in addition to the subject matter included in the general course for other extension employees.

Farmer Bulletins

Under the Japanese the results of research work conducted on the experiment stations had not been prepared in a form for general distribution. After South Korea's extension program was organized, however, the specialist staff and the technicians of the experiment stations reviewed the research work and, by the end of 1949, had written and published 10 bulletins. A very difficult point, and one never fully accomplished, was to get them written with the use of the Korean alphabet exclusive of Chinese characters. For generations, it was considered a sign of a high degree of intellectual accomplishment for a person to use the Chinese characters in preparation of written material. Unfortunately only a few Korean farmers can read the Chinese writing, while an estimated 50 percent of the rural population could read Korean.

South Korean rice farmers receiving on-the-spot guidance from their extension agents.

Projects

The projects included in the extension programs of the agents varied in different localities with the type of agriculture. This came as a natural result in shaping the extension programs to meet the needs of the people. There were, of course, certain projects of general interest. Some of these were selected to use in promoting National Action Programs in which the entire extension staff concentrated their efforts simultaneously on the same project. Such programs had the effect of attracting widespread attention to the Extension Service, creating general farmer interest in the project, giving volume to the program, and securing support for other phases of the extension program.

One such National Action Program was the "Summer Grains Educational Week"[1] of September 6–11, 1948, selected because of its importance to the economy of Korea. Through this project, it was expected to secure an increased production of small grains other than rice. Most farmers grow some barley that is used for food when the supply of rice is exhausted. Through increasing barley production, the pressure on the rice harvest would be eased somewhat with the possible result of increasing the amount of rice available for export.

The first job in preparing for the week's campaign was to write a subject matter leaflet on summer grain production and print sufficient copies for general distribution. This leaflet contained information on improved practices recommended. A method demonstration was developed to show farmers how to treat their seed for control of smut, a disease that severely reduces yields. This demonstration was given by Gun and Myun agents in connection with educational meetings held during the week. Group meetings of Gun

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[1] Summer grains is a term used in Korea, meaning all small grains except rice. They are usually planted in fall and harvested in June and July.

An extension agent showing South Korean farmers how to treat barley seed to control smut.

and Myun agents had been held in August to give them specific instructions and training for the campaign—how to arrange for the meetings in their area; a discussion of all technical information and practical recommendations contained in the leaflet prepared for distribution; instructions in the most effective methods in presenting the information; and practice in giving the demonstrations in seed treatments.

During the time this training was being given to agents, nation-wide publicity was started by radio, newspapers, circular letters, and every other possible means to announce the "Summer Grains Educational Week." Preparations were completed on time and 1,700 Gun and Myun agents throughout South Korea were ready. Here are some of the accomplishments:

More than 10,000 meetings and demonstrations were held with a total attendance of more than 500,000 farmers; several hundred bushels of grain were brought to the meetings and treated immediately after demonstration given by the agent; and, to prove the effectiveness of the smut-control treatment, most of the agents established field demonstration plots in which treated and untreated seed were planted. And, finally, the production of summer grains was increased.

This one project did much to instill confidence in the agents themselves and to prove to the public that the Extension Service is an agency that can effectively conduct an educational program that will cover the entire country.

Of the Extension Service's many other projects, two interesting ones were concerned with Potato Seed Production and Junior Club Work.

Potato Seed Production

By 1947, good-quality Irish potato seed stocks were very limited in Korea. Poor selection and the traditional practice of planting potato seed produced from diseased plants had greatly reduced yields. In 1946, seed stocks were imported from the United States and 2 years later the Extension Service began its program to maintain and multiply good seed potatoes. They did this by getting 900 farmers to plant 75 acres of second-crop potatoes from selected, disease-free plants for the production in the fall of seed potatoes for use in plantings made the following spring.

Junior Clubs

Most agents began programs of 4–H Club work among farm boys and girls. By the close of 1948, approximately 2,000 clubs, with a membership of around 50,000, had been organized. In the Province of Kyunggi Do during 1948, for example, club members produced 213 acres of crops, 5,629 chickens, 355 rabbits, 470 hogs, 25 colonies of bees, and 19 cattle.

Farmer Acceptance of Extension Service

The Korean farmers are receptive to new and improved farming practices provided they are presented to them in the right manner. The system of "coercion" and "force" used by the Japanese did not result in a lasting improvement in agriculture, largely because of the resentment farmers held for the methods employed. Because of this resentment, many practices that farmers were "forced" to adopt, even though good, were abandoned as soon as the nation was liberated in 1945. Some good practices, however, were later voluntarily readopted by the farmers who had abandoned them. The feeling of the average farmer toward the Extension Service can be summed up in the words of Oh Man Koon, a farmer living in the Province of Chung Chong Pukto, who wrote to the National Director of the Extension Service as follows: "The birth of the Extension Service system is considered as the first occasion in which the Korean farmers will get their due benefits. We, the farmers, have long been expecting some sort of a constructive policy which will abolish the colonization policy of the Japanese regime and bring economic betterment to the farmers. . . . We sincerely hope the Extension Service will be able to . . . become a real friend to us."

Fifty Landmarks In the Work of FAO*

by N. E. DODD

Since FAO was established 5 years ago, its work, in the broadest sense, has been directed toward bringing about far better use and management of the resources of that thin layer of soil and sea which in the last analysis is the source of all material wealth and on which the whole livelihood of mankind depends. The objective in its simplest terms is to enable millions to be better fed, clothed, and housed. This necessitates a wide range of technical and economic activities.

Important steps in the direction of our objectives are the following 50 developments in the work of the past 5 years. I realize that these developments are not of equal significance, but by setting them down it is possible to visualize the kind of contribution we have been making.

1. MISSIONS TO GREECE AND POLAND. The Mission to Greece was one of the first of FAO's undertakings. It involved making a broad-scale survey and proposals designed to bring about profound improvements in the agricultural and general economy of Greece. The survey still stands as a model of its kind. A little later, FAO sent a Mission to Poland which made a thorough-going survey of the agriculture of that country, with proposals for action to improve the difficult postwar food and agricultural situation.

2. MISSIONS TO THAILAND. The first survey in Thailand was concerned mainly with irrigation agriculture and with forestry. A later one dealt with the fisheries of that country. In both cases the recommendations made by the missions are being carried out by the Thai Government and promise to have highly beneficial results.

3. MISSIONS TO VENEZUELA, NICARAGUA, AND BOLIVIA. The Mission to Venezuela made a rather thorough survey and recommendations on the possibilities of increasing the production of edible oils to meet a severe and continuing shortage in the indigenous food production of that country. The Nicaraguan Mission, only recently completed, drew up recommendations for widespread improvements in agriculture and forestry. The survey in the Altiplano of Bolivia recommended fundamental improvements in agricultural production in the mountain areas that would make that country independent of outside sources of food. With this survey as a basis, the United Nations sent a mission to make a survey of the whole economy, with FAO participating in the agricultural and forestry aspects.

4. PARTICIPATION IN UNITED NATIONS MISSIONS—HAITI AND AFGHANISTAN. FAO participated in the United Nations Mission to Haiti, one result being a program now under way for development of fish resources through pond culture. A United Nations Mission now in Afghanistan includes several members whose services were obtained by FAO, and is making a survey of agriculture and other aspects of the country's economy. It was preceded by a pilot survey in which FAO also participated.

5. ENGINEERING WORK IN ECUADOR. Irrigation works and storage facilities in the most intensively cultivated agricultural area of Ecuador, which were destroyed by the devastating earthquake last year, have now been restored, and are in better shape than before.

6. SURVEY OF AGRICULTURAL CREDIT IN CENTRAL AMERICAN COUNTRIES. The cooperative FAO/ECLA survey of agricultural credit began in El Salvador,

Italian scientists examine the first hybrid seed corn produced at the Corn Experiment Station, Bergamo. FAO corn breeding projects are being carried out in some 20 countries of Europe and the Near East.

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*Adapted from "Work of FAO, 1949/50," Report of the Director-General, Food and Agriculture Organization of the United Nations, October 1950.

Mr. Dodd is Director-General, Food and Agriculture Organization of the United Nations.

where it has already resulted in national action to meet the credit needs of small-scale agricultural producers, and has now been extended to other parts of Central America.

7. International Rice Commission. This commission has started work on a broad cooperative program for improvement in the rice economy, especially among countries in the Far East, which I believe will have profound effects on the well-being of millions of people in that area. The first undertaking of major importance is a rice-breeding project which is being started in India but will directly benefit many other countries.

8. Maize Breeding Program. This program is being carried out in some 20 countries of Europe and the Near East, and is beginning in a small way in the Far East. Steady progress is being made in developing hybrid maize adapted to conditions in these countries. There is little question but that this will help to bring about material increases in feed and food supplies.

9. Catalogs of Wheat Breeding and Rice Breeding Stocks. These catalogs represent the first worldwide effort to bring together and maintain in one place, for the benefit of plant breeders everywhere, useful information about the important varieties of wheat and rice available for breeding purposes throughout the world. The project will be extended to include other varieties and other plants besides wheat and rice.

10. Distribution of Seeds of Improved Varieties of Plants for Experimental Purposes. Under this project FAO maintains or can readily obtain experimental lots of seed of a wide range of plants which are sent free on request to experimenters in member countries.

11. Plant Protection Conventions. A plant protection convention designed to minimize the hazards of spreading crop diseases and insects across international boundaries was drawn up last year with the active assistance of FAO.

12. Efficient Use of Fertilizers. A publication under this title, designed as a basic guide under a great variety of conditions throughout the world, is a good example of cooperation among technicians under the leadership of FAO. Experts from a number of countries participated in the preparation of the book, which is in wide demand.

13. World Soil Erosion Survey. This survey is being carried out in cooperation with the Conservation Foundation. When it is finished, it will be the first reasonably complete mapping of soil erosion throughout the world. It has already resulted in the preparation of up-to-date maps of soil erosion in the United States and Canada.

14. Control of Locusts. FAO has been instrumental in starting an active program among the Central American countries and Mexico to control the devastations caused by locusts in that area, and has brought together experts and government officials in the countries of the Near East for a similar program.

15. Improved Grain Storage. One of the early projects of FAO was to stimulate action by governments to improve storage methods and storage facilities for grains, of which enormous quantities are lost each year through the depredations of rodents, insects, and molds or other spoilage organisms. We have done field work in many countries in carrying out this project, including the recent regional grain-storage demonstration in Costa Rica, made possible by the generous cooperation of the government of that country and the Inter-American Institute of Agricultural Sciences.

16. Rinderpest Control. The program for rinderpest control in the countries of the Far East and the Near East is widely known. Based on assistance by FAO in producing new and highly successful types of vaccines and coordinating efforts in many different countries, the work envisages the ultimate eradication of this livestock disease, which has for generations so severely handicapped agricultural production over an enormous area.

17. Control of Other Animal Diseases. One of the earlier projects of FAO was a meeting in Warsaw which brought together specialists on diseases of cattle, horses, sheep, hogs, and poultry, from many European countries, for discussion of recent developments in disease control. Following the meeting, improvements were made in veterinary services by a number of governments. A project for an international program to control foot-and-mouth disease in which FAO would play a leading part is now under consideration.

18. Breeding Livestock for Tropical Environments. FAO has taken the lead in coordinating efforts among many countries to speed up the improvement of livestock in tropical areas by the use of breeding methods that promise the greatest practical results. A meeting held in Lucknow, India, this year was one of the first steps in the program, which holds much promise for increasing the output of livestock products in areas where this has been especially difficult.

19. World Food Survey and Food Balance Sheets. The *World Food Survey*, one of the earliest projects undertaken by FAO, was the first large-scale attempt to determine the nutritional situation of most of the world's people. It is still a basic document of great importance and next year will be brought up to date in the light of new facts and new knowledge. The type of material gathered for the survey, showing supplies of the foods in all the major food groups, country by country, is being kept up to date in *Food Balance Sheets.*

20. Basic Tools for National Nutrition Programs. We are providing these in the form of internationally comparable data on the composition of foods, the calorie and nutrient requirements of human beings, and the methods of conducting and interpreting dietary surveys. This basic material, in a form adaptable to the widest possible range of conditions, is an elementary need in evaluating the food situation and designing programs of production and distribution based on nutritional needs.

21. Methods of Improving Nutrition. Two of the most important steps that can be taken by governments in raising levels of nutrition are to institute or

Weighing bales of potatoes at an agricultural co-op station, Omaki, Japan. FAO has been vigorously sponsoring the organization of cooperatives in the Far East.

expand supplementary feeding programs (for example, for school children and pregnant and nursing women) and programs of nutritional education. Material we have gathered from all over the world on sound methods in both these fields is being published and made available as a guide and stimulus to governments. Some direct assistance to governments in developing satisfactory programs is also being provided.

22. Stimulation of Nutritional Activities. This is a widespread, continuing effort to build up and improve nutritional services where they are most needed, carried out through direct contacts of FAO experts with nutrition workers and government officials in member countries as well as through regional meetings such as those held in Latin America and in the Far East.

23. Technical Assistance in Nutrition to Individual Countries. Though FAO has not had the means to do extensive nutrition work in individual countries, there are a few outstanding exceptions. One is the case of Greece, where a nutrition officer has been stationed for the past 3 years and has helped to coordinate nutritional activities and establish policies and programs which are materially affecting the food and nutrition situation. Similar work is planned for Turkey in the near future. In Egypt, an extensive survey was made by FAO in cooperation with the World Health Organization, and recommendations were submitted for widespread improvements in the country's nutrition organizations and programs. We have had a nutrition officer stationed for some time in Guatemala, working with the Institute of Nutrition for Central America and Panama. Assistance has also been provided in planning and coordinating nutrition activities in the Philippines, and recently a nutrition officer was sent to Thailand to develop a program of education in nutrition.

24. Regional Fisheries Councils. To spread our resources as far as possible by bringing about direct cooperative activity among governments, we are making an attack on the problem of improving fish production and distribution by establishing regional fisheries councils. In these councils governments work together on many scientific and technical problems and activities, with FAO furnishing the secretariat. The first such organization established was the Indo-Pacific Fisheries Council. A similar agency for the Mediterranean area will probably soon be set up, and the first steps have been taken toward organizing one for Latin America.

25. Technical Assistance in Fisheries to Individual Countries. Two FAO fisheries officers are stationed in the Far East, and other technical experts have made many visits to Latin America, Europe, and the Near East. Examples of technical aid to governments in developing fisheries services are the work done during the past year in Pakistan and Ceylon. The activities in Thailand and Haiti are mentioned under items 2 and 4.

26. Pond Fish Culture. There is a rapidly growing interest in the production of fish by intensive culture methods in ponds, often in connection with farming operations. This method makes possible a considerable increase in supplies of protein foods at comparatively low cost. FAO is carrying out a pond fish culture project in Haiti, as noted under item 4, is giving advice to interested governments on similar developments, and is preparing regional handbooks. The first handbook, dealing with Southeast Asia, is soon to be published.

27. Fisheries Abstracts. One of the principal needs in fisheries is for far more widespread, up-to-date information about technical developments. FAO has started an abstracting service which publishes in three languages summaries of all recent technical advances.

28. Fisheries Statistics and Commodity Studies. The FAO *Yearbook of Fisheries Statistics* is a new venture on an international scale. One volume has been published to date, and a second is in press. The Fisheries Bulletin, published bimonthly, contains current statistics and a good deal of other material regarding the industry. Work being done toward improving government statistics relating to fisheries is having noticeable effects. As a step toward solving some of the major problems of the fisheries industry, particularly those associated with periodic or irregular surpluses, limited consumption, and other difficulties connected with distribution, FAO has been conducting commodity studies, beginning with salted cod, tuna, and herring.

29. Forest Policy. FAO has sought to have each country apply rational principles in its forest manage-

ment, development, and utilization, and base its activities on a national forest policy legally founded and soundly administered. Few countries have such a comprehensive policy. As a major undertaking, a statement of basic forestry principles is being put before the regional Forestry and Forest Products Commissions and the FAO Conference. The European Commission has already given general approval to the ideas contained in the statement.

30. Forestry Development in Europe. The Copenhagen Conference considered the postwar needs of Europe to be the most urgent. The European Forestry and Forest Products Commission, the Timber Committee of the Economic Commission for Europe, and other European forestry bodies established or serviced by FAO since the Marianske-Lazne Conference (1947) have been instrumental in greatly improving the situation insofar as forest products are concerned. The granting of loans for timber production equipment by the International Bank for Reconstruction and Development is an example of one of the successful projects initiated by FAO.

31. Forestry Development in Other Regions. The reports of the Teresopolis (1948) and Mysore (1949) Conferences are considered as charters for forestry activities in Latin America and the Far East. The Latin-American Forestry and Forest Products Commission set up with headquarters at Rio de Janeiro, and the Asia and Pacific Commission, which will hold its first session at Bangkok in October 1950, now make it possible to extend the work of FAO to two of the most important forested regions of the world. A program for the Near East is under way. Many of the problems of this region fall within the scope of the Mediterranean Subcommission.

32. Montreal Pulp Conference. This conference, sponsored by FAO and the Canadian Government, was the first meeting to bring together important industry and government representatives from the major wood pulp producing and consuming countries. It drew up a report on the outlook for wood pulp which has so far been confirmed by subsequent developments. It allotted to FAO the task of keeping the wood pulp situation under continuous review.

33. Forestry Mission for Austria. At the request of the government, a mission has advised on the development and improvement of Austria's forest resources and industries. It is important as representing a comprehensive investigation of the forestry and forest industries situation in a highly developed country. The mission's recommendations involve a reorganization of the forest administration and of its financing. Investment proposals of roughly $80 million over the next 3 years from ECA funds affect the whole national economy. Of this sum, about $23 million have already been made available.

34. Improved Forestry and Forest Products Statistics. FAO's statistical program continues and expands prewar series. Reviewed by special international meetings at Washington, Rome, and Geneva, it has led to a larger body of consistent and timely national statistics than has ever previously been available. These statistics are incorporated in the FAO report *Forest Resources of the World,* the *Yearbooks of Forest Products Statistics* and ECE/FAO *Statistical Bulletins.* Continued improvement is being sought.

35. Basic Forestry Studies. *Unasylva,* established in the early days of FAO, has been developed as a medium for discussion of problems of international concern. A new series of important and more intensive studies, basic to the Expanded Program of Technical Assistance, has been initiated—*Planning a National Forest Inventory* is now in press; *Forest Policy, Law, and Administration* and others are in preparation.

36. Technical Consultations on Forestry and Forest Products. Among FAO's technical committees, the Wood Chemistry and Mechanical Wood Technology Committees have achieved very important results. Through its working arrangements with the International Union of Forest Research Organizations and the International Poplar Commission, its sponsorship of the Third World Forestry Congress, and its participation in the United Nations Conference on the Conservation and Utilization of Resources, FAO has done much to influence the direction of technical developments in many fields.

37. Rational Utilization of Wood. FAO's efforts to bring about more rational wood utilization and to standardize timber-testing methods, the sizes and quality of timber in international trade, and timber names should result in widespread improvements in these fields. The problems are difficult, but steady progress is evident, as in the case of the Mechanical Wood Technology Conference of 1949 and the technical meeting in Indochina in April 1950. The assembling of reference documentation on all types of modern mechanized forestry equipment is also a step toward encouraging rational development of forests and utilization of their products.

38. Extension Services. FAO cooperated with OEEC in a survey of extension work in European countries. The work has resulted in agreements by governments for further and more active development of these services. A conference on extension work for Latin America was held in 1949, and arrangements have been made for a training center in agricultural extension to be conducted in cooperation with the Inter-American Institute of Agricultural Sciences early in 1951.

39. Agricultural Cooperative. A technical meeting on agricultural cooperatives for the Far Eastern countries was held in Lucknow, India, at the end of 1949, followed by direct consultations with government officials in a number of Far Eastern countries. Similar consultations will soon be under way in the Near East. FAO is now carrying out several basic studies on the management, financing, and servicing of cooperatives and one on purchasing cooperatives in Europe.

40. Fundamental Studies in Rural Welfare. A number of FAO studies were made on fundamental aspects of rural welfare as aids in the formulations of national policies and programs. These studies—es-

sentials of *Rural Welfare, Training Rural Leaders, Social Welfare in Rural Communities, Educational Approaches to Rural Welfare*—have been in rather wide demand.

41. JOINT WORKING PARTIES ON AGRICULTURAL REQUISITES. Joint working parties, established by FAO and the Economic Commission for Asia and the Far East and by FAO and the Economic Commission for Latin America, visited all countries in the two regions and made careful studies of the need for and the available supplies of materials and equipment for agricultural production. This work was international economic pioneering of the first order. Further work done by FAO in collecting and analyzing statistical and economic data relating to farm machinery in all regions has brought together information not previously available which is now published in a report *Progress and Economic Problems in Farm Mechanization.*

42. WORLD STATISTICS OF PRODUCTION AND TRADE. The *Yearbook of Food and Agricultural Statistics* is published by FAO in two volumes, one on production and one on trade. In addition, current statistics are published in the *Monthly Bulletin of Food and Agricultural Statistics.* Much effort has been given to the development of internationally comparable index numbers, which have proved to have great value in the analysis of agricultural trends.

43. WORLD AGRICULTURAL CENSUS. A world agricultural census is being conducted under FAO leadership by 63 countries in or near 1950.

44. IMPROVING NATIONAL STATISTICS AND STATISTICAL SERVICES. There are few more urgent needs in relation to national and international reporting in food and agriculture than improvement in the statistical services of a considerable number of governments, particularly in the underdeveloped countries. Without adequate and reliable statistics, planning is impossible. As an aid in bringing about these improvements, FAO has during the past 2 years set up and cooperated in conducting statistical training centers for Latin America, the Near East, the Far East, and Europe. Some of this work has been in preparation for the world agricultural census. In addition, a good many governments have been given individual assistance insofar as this was practicable within the limitations of staff and funds.

45. INVESTMENT AND FINANCING OF AGRICULTURAL DEVELOPMENT. An FAO study in 1949 of investment in agriculture brought together for the first time on a regional and world basis information on the volume and direction of investment in agriculture and was a basic work in this field. This has been followed in 1950 by arrangements for obtaining from governments detailed information on investment and other aspects of development projects, an undertaking which will add fundamentally to knowledge in this field and help to provide a basis for intelligent action.

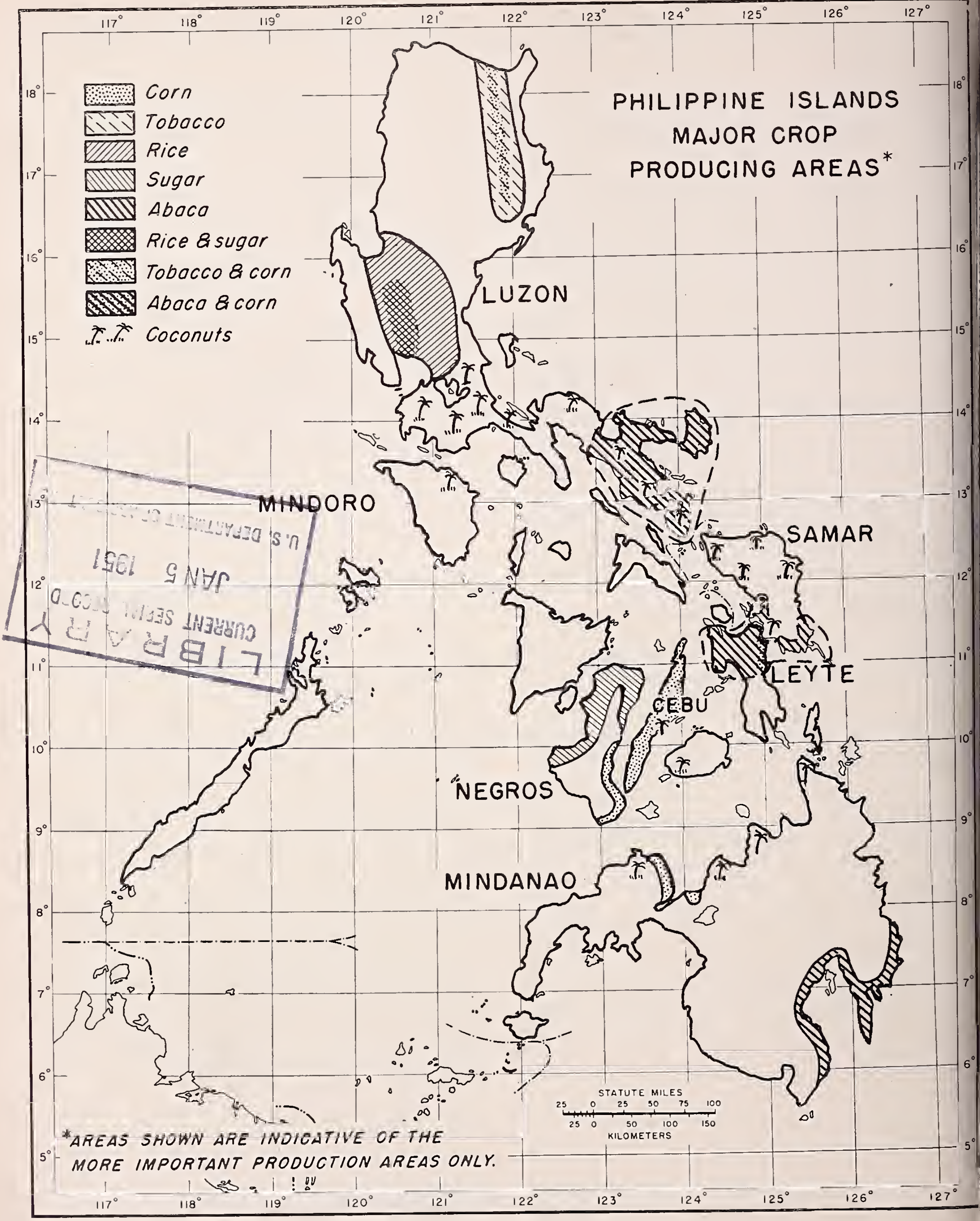
46. ASIAN CENTER ON AGRICULTURAL AND ALLIED DEVELOPMENT PROJECTS. An Asian training center now under way to assist government officials in formulating and evaluating development projects is a new undertaking which should make a basic contribution to economic development not only in the Far East but also in other regions where schools on similar lines could be organized.

47. INTERNATIONAL ALLOCATION OF FOODS. One of the first steps taken by FAO was to bring governments together to set up an International Emergency Food Council to carry on and extend the work of the Combined Food Board in allocating scarce foods to meet urgent needs after the war. Later this Council became the International Emergency Food Committee of FAO. These allocations did much to alleviate the worst effect of postwar food shortages.

48. DEVELOPMENT AND INTERNATIONAL INTEGRATION OF NATIONAL POLICIES, PROGRAMS, AND GOALS. It is one of the chief functions of FAO to stimulate and assist in the development of adequate policies and programs for agricultural production. In this work including the setting up of practicable targets for production, consumption, and trade, assistance has been given to governments in as many countries as possible by visits of individual experts. A beginning has been made in the integration of national policies and programs at the regional level through regional meetings, the first of which was held in the autumn of 1949. The final step is integration on a world level. This takes place in the annual review at the FAO Conference, where a significant beginning has been made in a new and difficult procedure.

49. WORK ON INTERNATIONAL COMMODITY ARRANGEMENTS AND COMMODITY REPORTING. FAO has kept continually before governments the need for orderly international marketing arrangements for major agricultural commodities as the necessary counterpart of production development. The first proposal, for a World Food Board which would buy supplies during periods of surplus and release them during periods of scarcity, was turned down by governments. A preparatory Commission on World Food Proposals was then established which made an intensive study of commodity and related problems and prepared a report which is still a landmark. The next proposal by FAO was for an International Commodity Clearing House which, with narrower functions, was designed to achieve much the same ends as the World Food Board. This too failed of acceptance by governments, but an FAO Committee on Commodity Problems was set up which is functioning within a still narrower range. FAO also assisted in working out the International Wheat Agreement. It has continued to carry on a fairly extensive regular reporting service on commodity situations covering most of the important agricultural products. A comprehensive report on the world outlook for demand and prices of farm products was prepared in 1949 and again in 1950.

50. DEVELOPMENT OF WORLD FOOD CONSCIENCE. All in all, perhaps the most important work of FAO has been to help develop a world consciousness of the crucial nature of the food problem and what can be done about it, and a world conscience that is increasingly demanding adequate action.



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